NEWSLINE

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Technology thriving in Tri-Valley

Lab engineers develop combustion method that lowers pollutants

By Anne M. Stark
NEWSLINE STAFF WRITER

Lab engineers have developed a unique combustion method that results in lower power plant pollutant emissions by combining stage-combustion with nitrogen-enriched air.

The new technology, dubbed Staged Combustion with Nitrogen-Enriched Air (SCNEA), could help power plants comply with strict Environmental Protection Act requirements for decreasing plant emissions.

The technology was showcased Wednesday at the Tri-Valley Technology Enterprise Center's Tri-Valley Software Showcase.

SCNEA can replace or enhance current pollutant control technologies at a lower cost while at the same time further reducing pollutants. In addition, existing power plants can be easily retrofitted to use the SCNEA combustion method without a huge cost increase.

"As EPA requirements become tighter and tighter on emissions, most solutions become more difficult and more expensive to implement," said Larry Fischer, LLNL principal investigator for SCNEA. "With our technology, consumers will see cleaner air at a miniscule increase in their utility bills."

Before concerns about oxides of nitrogen (NO and NO_2, termed NO_x)

See **COMBUSTION,** *page 8*

SCOTT WILSON/PUBLIC AFFAIRS

David Nowak spoke of partnerships to advance technology.

Lab technologies in spotlight

By Anne M. Stark
NEWSLINE STAFF WRITER

More than 200 investors, software aficionados, computer gurus and Lab and Sandia employees on Wednesday attended the Tri-Valley Software Showcase.

The event, held at the CarrAmerica Conference Center in Pleasanton and sponsored by the Tri-Valley

See **TTEC,** *page 8*

Director's selection update

University of California officials continue to communicate closely with Department of Energy and National Nuclear Security Administration officials on the selection of the Lab's next director. According to Michael Reese, UCOP's assistant vice president for Strategic Communications, no decision on the next steps in the search process is expected for at least another week. The matter is not on the agenda for the Regents meeting scheduled for next week. As the next steps in the process become more defined, information will be communicated to all LLNL employees in either *NewsOnline* or *Newsline*.

JGI to provide defense against disease organisms

By Paul Preuss
LAWRENCE BERKELEY NATIONAL LABORATORY

The Department of Energy's Joint Genome Institute (JGI), whose Production Genome Facility in Walnut Creek is one of the fastest and most powerful in the United States, has been enlisted to help safeguard public safety by determining the whole genome sequences of a variety of infectious bacteria — a first step toward developing tests that can be used to rapidly identify their presence in the environment.

While the anthrax strains used in recent bioterrorist attacks could be identified, there are no field tests for dozens of other potentially dangerous microbes. To

See **JGI,** *page 7*

Hecker to speak as part of DDLS

Sig Hecker

Sigfried Hecker, senior fellow at Los Alamos National Laboratory, will discuss "60 Years of Plutonium: A Great Challenge — Then and Now," as part of the Director's Distinguished Lecturer Series. Hecker, the former director of LANL, will make his presentation at 3:30 p.m. Tuesday, May 21, in the Bldg. 123 auditorium.

Lab Director Bruce Tarter invites all employees to attend.

Hecker believes plutonium symbolizes everything associated with the nuclear age. It evokes the entire gamut of emotions from good to evil, from hope to despair, and from the salvation of humanity to its utter destruction. No other element bears such a burden. Its discovery in 1941, three years after the discovery of fission, unlocked the potential and the fear of the nuclear age. The 239 isotope of plutonium became the material of choice for nuclear weapons primaries because of its attrac-

See **HECKER,** *page 8*

Rep. Hunter uses Lab's research for plan to transfer water to replenish Salton Sea

By Anne M. Stark
NEWSLINE STAFF WRITER

In an effort to reduce California's dependence on the Colorado River as its largest source of water, Lab researchers have conducted a study that spells out how a transfer of unused agricultural water from the Imperial Irrigation District to other users will affect the Salton Sea.

At the request of Congressman Duncan Hunter of California's 52nd District, which includes a majority of the Salton Sea, LLNL scientists met with many of the key stakeholders to draw up a plan that explains the impacts. Agencies participating in the discussions included the U.S. Bureau of Reclamation in Yuma, Ariz., Imperial Irrigation District and the Salton Sea Authority.

In the report, LLNL indicates that water officials face several chal-

See **SALTON SEA,** *page 7*

LAB COMMUNITY NEWS

Weekly Calendar

Technical Meeting Calendar, page 4

Monday 13

The Career Center and Recruiting & Employment are hosting a brown-bag session on resume development, **"Increasing the Power of Your Resume,"** from 12-1 p.m. in Bldg. 571, room 1335. This workshop is free and open to anyone interested in attending. Contact: Sharon Giovannoni, 2-5571.

Tuesday 14

A representative from **Fidelity Investments** will be on-site to meet with employees today and Wednesday. Fidelity Investments are available to UC's 403(b) participants in addition to the UC-managed investment funds. Call Fidelity at 1-800-642-7131 to set up an appointment. When calling, be sure to specify you are an LLNL employee.

Thursday 16

The need for a comprehensive strategy for coping with biological terrorism will be discussed when Christopher Chyba presents **"Toward Biological Security,"** as part of the Director's Distinguished Lecturer Series, at 3:30 p.m. in the Bldg. 123 auditorium. (See story on page 5 for more information.)

• • •

Employees interested in learning more about the **CalPERS Long-Term Care** Program may attend a special presentation scheduled for 10:30 a.m. - noon in the Bldg. 543 auditorium. Long-term care provides the extended care you would need with basic activities like dressing, bathing, or eating because of a chronic illness, injury, or old age. The CalPERS Long-Term Care Program is available to all California public employees and retirees, including UC employees and their family members. The 2002 application period is April 1 - June 30. Contact: Benefits Office, 2-9955.

Up & Coming

The **LLNL Retirees Travel Slide Group** will meet on May 28 at 2 p.m. at the Livermore Library meeting room for a presentation by Jim and Bobbie Hadley on "The Panama Canal and Ports of Call."

Lab TV Broadcast Schedule

The Lab's Truck Stopping Device is in the spotlight in the latest **"Technology Today,"** featuring Ron Cochran, Dave McCallen and Susan Houghton, Monday through Friday at 10 a.m., 2 and 4 p.m. on

BRIEFLY

Original 'Good Morning, Vietnam' DJ to speak at Lab

G-o-o-o-d morning, LLNL!

Adrian Cronauer, who co-authored the original story for the movie "Good Morning, Vietnam" and was loosely portrayed by Robin Williams in the film, will speak at the Lab in honor of Memorial Day. The talk takes place at 10:30 a.m. today (May 10), in the Bldg. 123 auditorium.

Cronauer is senior vice chairman of the Vietnam Veterans Institute and a member of the board of the National Vietnam Veterans Coalition. Cronauer frequently speaks before universities and social, veterans and business groups on the role of military radio during the Vietnam War.

The talk is co-sponsored by the Lab's Armed Forces Veterans Association and Defense and Nuclear Technologies.

Deaf Awareness Week features speaker, sign language classes

Shazia Siddiqi, a UC Berkeley graduate in molecular cell biology and a disabilities activist, will be the guest speaker during Deaf Awareness Week, beginning Monday. Siddiqi's talk takes place at noon Monday in the Bldg. 361 auditorium. All employees are invited.

Siddiqi has been shattering stereotypes and overcoming barriers her entire life. She has faced obstacles as a deaf woman within a scientific field of study. As a Muslim woman she has had to correct people's misconceptions about her heritage. To add to her frustrations, she has faced problems receiving adequate accommodations to enable her to succeed in her education.

Despite those challenges, Siddiqi is currently attending UCLA preparing for medical school. Siddiqi will share these experiences during her talk.

Also during the week, employees may sign up for sign language classes. Class begins Wednesday and continue until Wednesday, June 26. Classes meet every Monday and Wednesday, noon-1 p.m. in Bldg. 571, room 2301. Bring your lunch; classes are free; no registration is necessary. For more information, contact Carol Sandoli, 3-4385.

NARAC recognized by DOE for outstanding presentation

NARAC representative Ron Baskett, participated in the DOE Emergency Management Issues Special Interest Group (EMI SIG) meeting this week in Charleston, S.C., and received the best presentation award.

EMI SIG is made up of about 500 members, primarily DOE managers, Lab and contractor managers, and support staff in emergency planning and response throughout the DOE complex (www.orau.gov/emi). DOE headquarters staff also participated in the meeting.

Awards are given for excellence in emergency management, best training product, best display, and best presentation. Last year NARAC's Joe Tull brought home the best display award for his NARAC Internet and Web Access display and iClient demonstrations.

Baskett received the best presentation award for a presentation about NARAC support to DOE sites and emergency response teams.

"These awards reflect the outstanding work that NARAC consistently produces and is a reflection on the excellent focus and continued teamwork for our efforts to create innovative tools, and provide a useful service for the DOE complex and for the country," Baskett said.

Illinois ASCI center team plans to visit the Laboratory

The Laboratory will host an all-day visit of key team members of the University of Illinois ASCI Center for Simulation of Advanced Rockets, on Monday, May 20.

This project is one of five ASCI "level one" academic alliances focused on computational grand challenges and collaboration with LLNL, Los Alamos and Sandia national laboratories.

The center goal is the detailed, whole-system simulation of solid propellant rockets under both normal and abnormal operating conditions. Rocket simulations couple energetic materials, solid and fluid dynamics, and material damage in complex burn scenarios.

The visit will include oral overviews, discussion sessions and technical poster displays covering all aspects of the project. Discussions and presentations will also cover computer science topics, including software frameworks, parallelization, solvers, visualization and code integration.

The overview will start at 9 a.m. in the Bldg. 123 auditorium. For more information contact Luz Hawkins at 2-4793 or hawkins2@llnl.gov.

RETIREMENTS

Karen (Maniz) Carter

Karen (Maniz) Carter is retiring from the Lab on May 31 after 20 years of service. She is an assurance specialist in Mechanical Engineering's Materials Management division.

A farewell celebration is planned at Garre Cafe & Winery on Friday, May 31 at noon. The cost is $18 per person.

Please RSVP by Friday, May 24, to Lourdes, 3-9664, Joan, 2-9871, or Jody, 3-2728.

Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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1952 – 2002
MAKING HISTORY, MAKING A DIFFERENCE

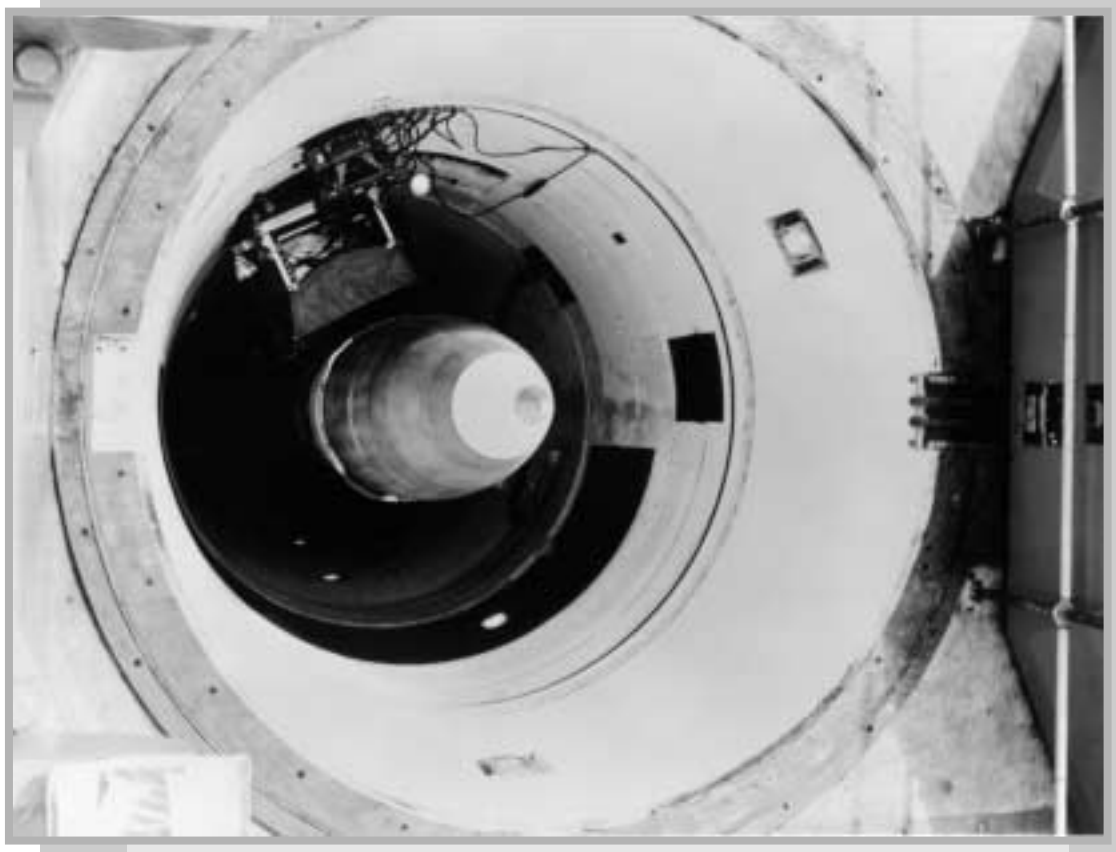
Multiple warheads extend missile system effectiveness

This is an ongoing feature highlighting the Lab's 50-year history. This week we take a look at the year 1970.

In 1970, the United States dramatically increased the effectiveness of its strategic missile forces. Both the Minuteman III intercontinental ballistic missile and the Poseidon C-3 submarine-launched ballistic missile were deployed with multiple independently targeted reentry vehicles (MIRVs), a technology that allowed each missile to attack more than one target. Livermore designed the warheads — the W62 for MMIII (deployed in April 1970) and the W68 for C-3 (deployed in June 1970).

Each development program faced significant design challenges. Because 14 vehicles had to fit on the relatively small C-3 platform, the W68 (in the Mk3 re-entry body) was the smallest strategic warhead ever deployed by the U.S. The accuracy requirement for Minuteman led to a re-entry vehicle design with stringent volume limitations on the warhead, and the yield had to be sufficient for attacking hardened missile silos.

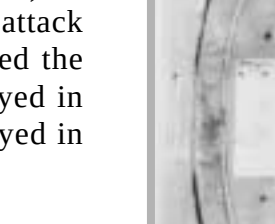
The W62 and W68 represented such a dramatic advance in nuclear design that all subsequent missile system warheads have incorporated many of their key elements. Their extensive development programs, conducted in close coordination with the Air Force and Navy, and their contractors, were a model for all subsequent programs.



In the 1970s, Minuteman III missiles with Livermore-designed W62 warheads were deployed in 550 silos at Air Force bases in three states.

MIRV warheads 1970

Around the Lab



Though still the largest effort, nuclear weapons research steadily declined. Work for other agencies and inertial fusion increased and basic science research and the National Computer Center were funded. The Energy and Laser directorates were created, and Plowshare ended.

The success obtained with magnetic confinement of plasmas in tokamak devices, first in the Soviet Union and then in the United States, led in the early 1970s to the decision to accelerate the U.S. program to produce fusion power reactors. The resulting effort was structured into two subprograms: one to address the remaining physics uncertainties of plasma confinement and the other to address the engineering feasibility of fusion reactors.

Around the nation

- **U.S. deploys MIRVed Minuteman III ICBMs**
- **In an antiwar protest, four Kent University students killed by National Guardsmen**
- **Environmental Protection Agency (EPA) is created by Congress to control air and water pollution**
- **Jimi Hendrix and Janis Joplin both die this year**
- **First New York Marathon**

Around the world

- **U.S./South Vietnamese invasion of Cambodia**
- **Arab commandos hijack three jets bound for New York from Europe**
- **In Libya, Col. Muammar Qaddafi assumes power as premier after more than a year in power, despite attempts to overthrow him**
- **The Indian-Pacific Express railway begins running twice a week**

in other NEWS

Significant events around the Lab, the nation and the world

For more of the Lab's rich history, check out the Timeline, located at : http://www.llnl.gov/timeline/

NEWS YOU CAN USE

Soaking up information

Students from San Francisco State University's hydrogeology class recently visited the Lab to learn about some of the Environmental Restoration Division's techniques used to characterize, monitor, target and clean up environmental contaminates. Lab employees Zafer Demir (center, back to camera) and Charles Noyes (right, in cap) demonstrate hydraulic test equipment used to analyze groundwater flow beneath the Lab.

Other parts of the visit visit included a tour of a drilling rig constructing a groundwater monitoring well, an overview of site hydrogeology and the methods used for mapping and modeling contaminants in the subsurface, a tour of treatment units used to remove and treat groundwater contaminants, and a visit to a location where groundwater chemical sampling and a pumping test is under way.

Technical Meeting Calendar

Friday 10

INTEGRATED COMPUTING & COMMUNICATIONS
Legato update and technical briefing on Networker and enterprise class software solutions and service offerings. Bldg. 361 auditorium, 9 a.m. to 2:30 p.m. Speakers include key corporate executives and technical specialists from Legato products and engineering organizations. Refreshments will be served. RSVP to http://www.legato. com/llnl/, or Candace Gittins, gittins1@llnl.gov.

CENTER FOR APPLIED SCIENTIFIC COMPUTING
"Data Reduction Techniques using Subsampling," by Lori Freitag and Raymond Loy, Argonne National Laboratory. 10 a.m., Bldg. 451, room 1025 (uncleared area). Contacts: Ghaleb Abdulla, 3-5947, or Emma Horcabas, 2-3567.

DEFENSE & NUCLEAR TECHNOLOGIES
"Omega Radiation Experiments: Making Measurements That Matter," by Christina Back, LLNL. 10:30 a.m., Bldg. 132 auditorium (cleared area). SRD presentation. Contact: Mark Herrmann, 2-6999.

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS
"Dispersal Of Disks Around Young Stars," by David Hollenbach, NASA. Noon, Bldg. 319, room 205 (badge required). Contact: Jenny Patience, 2-2102, or Rosemarie Cortez-Kudo, 3-0621.

MATERIALS SCIENCE & TECHNOLOGY
"Synchrotron X-Ray Microscopy: Application to High Resolution Materials Characterization and Metrology," by John Kinney. 3:30 p.m., Bldg. 235, room 1090 (uncleared area). Coffee and cookies will be served at 3:20 p.m. Contact: Rebecca Browning, 2-5500.

Monday 13

UC DAVIS, DEPARTMENT OF APPLIED SCIENCE
"Controlled Nuclear Fusion: New Ideas About a Classical Embarrassment for Physicists," by Richard R. Freeman, Department of Applied Science. 4 p.m., Bldg. 661 (Hertz Hall), room 7 (open area). Refreshments served 15 minutes before seminar for a "meet the speaker" session. Contact: Estelle Miller, 2-9787.

Tuesday 14

LIVERMORE COMPUTING
LC Customers' Monthly Meeting. 9:30 a.m., Bldg. 111, Poseidon room (cleared area). Contact: Teresa Delpha: taf@llnl.gov.

LIVERMORE COMPUTING
"Efficient MPI for HPC Applications: The MSTI PathForward" by Tony Skjellum, MPI Software Technology Inc. 9 a.m. , Bldg. 451, White Room (uncleared area). Contact: Terry Jones, 3-9834, or trj@llnl.gov.

Wednesday 15

MATERIALS RESEARCH INSTITUTE
"X-Ray Fluorescence Holography: Some Recent Developements," by Stefano Marchesini, LBL. 3:30 p.m., Bldg. 219, room 163 (badge required). Contacts: Mike McElfresh, 2-8686, or Joanna Allen, 2-0620.

INTEGRATED COMPUTING & COMMUNICATIONS DEPARTMENT
Macintosh Technical Seminar Series: "How to Become a Mac OS X Power User," by Bob "Dr. Mac" LeVitus. LeVitus is a best-selling author of 38 books, columnist for the Houston Chronicle & Austin-American Statesman, daily contributor and forum manager at osxfaq.com, and former editor and writer for several magazines and websites, including MacUser and MacCentral. LeVitus is one of the world's leading authorities on the Macintosh and Mac OS X. Along with his busy seminar schedule, Bob's recent book efforts include "Mac OS X For Dummies" and "Dr. Mac: The OS X Files." 10:30 a.m., Bldg. 543 auditorium (uncleared area). Contact: Duane Straub, 2-9774, or straub1@llnl.gov

Thursday 16

PHYSICS & ADVANCED TECHNOLOGIES
"Time-Resolved Structural Dynamics on the Nano-Scale," by Aaron Lindenburg. 10:30 a.m., T1726, room 1000 (uncleared area). Contact: Kevin Fournier, 3-6129, or or Eryn Davis, 2-0475.

DIRECTOR'S OFFICE
"Phase Transition and Radiative Proton-Capture Pycnonuclear Reactions in Laser-Compressed Metallic Hydrogen," by Setsuo Ichimaru, University of Tokyo. 2 p.m., Bldg. 219, room 163 (badge required). Contacts: Lowell Wood, 2-7286, or Gloria Purpura, 2-7281.

PHYSICS & ADVANCED TECHNOLOGIES
"A Proposal For The Ultimate Radiation Detector," by Jim Lund, Sandia National Laboratories. 11 a.m., Bldg. 132S, room 1784. Contacts: Kris Petersen, 2-6393, or Simon Labov, 3-3818.

Friday 17

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS
"The Nature of Dark Matter," by Joel Primack, UC Santa Cruz. Noon, Bldg. 319, room 205 (badge required.) If you are coming from outside LLNL and are a U.S. citizen, please notify us of your intent to attend the seminar by Thursday afternoon. If you are not a U.S. citizen, please notify us at least one week in advance of the seminar date. Contacts: Adam Stanford, 3-6013, or Rosemarie Cortez-Kudo, 3-0621.

MATERIALS SCIENCE & TECHNOLOGY
"Engineered Microstructures for Advanced Metallic Materials," by Christopher Schuh. 3:30 p.m., Bldg. 235, room 1090 (uncleared area). Coffee and cookies will be served at 3:20 p.m. Contacts: Rebecca Browning, 2-5500, or Thomas E. Felter, 2-8012.

ENERGY & ENVIRONMENT
"DOE Heavy Vehicle Aerodynamic Drag Project," by Rose McCallen, LLNL. 10:30 a.m., Bldg. 543 auditorium. Contact: Camille Vandermeer, 3-2672. Refreshments will be served.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to tmc-submit@llnl.gov. For information on electronic mail or the newsgroup llnl.meeting, contact the registrar at registrar@llnl.gov.

NEWS OF NOTE

Health-care system needs plan for biological attack

By Anne M. Stark
NEWSLINE STAFF WRITER

The U.S. public health care system is not prepared to respond to a large-scale biological attack. Further, a modern health surveillance system that can detect infectious agents in real time doesn't exist.

That's the outlook Frederick "Skip" Burkle Jr. presented Monday during his talk, "Public Health Implications of a Large-Scale Bioterrorist Event: Requirements for Advanced Surveillance and Response Systems." He said a large-scale event will require unique triage, management and resource allocation decisions.

"It's very unusual for us to have a disaster with more than 40 casualties," said Burkle, a senior scholar scientist and visiting professor at the John Hopkins University Medical Institutions and senior medical and public health adviser at the Defense Threat Reduction Agency.

He said the United States has not had to respond to a widespread biological attack on U.S. soil.

DON JOHNSTON/NEWSLINE
Frederick Burkle, Jr.

"We lack a real-time modern surveillance system," Burkle said. "Our current systems are very archaic and are not ones that we can rely on for very good pathogen detection."

Burkle suggested Lab employees ask themselves: "How does my background help solve this problem?"

To date, the Lab has developed the Handheld Advanced Nucleic Acid Analyzer (HANAA) and the Autonomous Pathogen Detection System, which consist of biological detectors that could be used in the field to immediately detect and identify biological agents that might be deployed by terrorists. The Lab also is researching the DNA signatures of biological pathogens. These signatures can be used in various technologies to identify harmful biological agents in the field.

Burkle cited a 1997 study of the public health system which stated that U.S. capabilities in response to a large-scale bioterrorist disaster are "weak at all levels" including local responders, initial treatment facilities, state and federal responses.

"That really hasn't changed all that much," he said.

Even post 9/11, Burkle said the public health and response systems are not up to par to respond to a large biological or chemical attack.

He suggested several lessons learned from Sept. 11:

- The initial anthrax "case definition" is not adequate.
- Ten cases posed on the Internet by the Centers for Disease Control significantly altered the existing case definition due to spore size, human engineered changes, etc.
- Responders need to think of "population" rather than individual.
- Response limited by vertical physician-patient decision making.
- Traditional surveillance systems are archaic.
- Unique emergency public health measures are required for management of a large-scale event.
- Traditional emergency management systems take a secondary role.
- Traditional health facilities are inappropriate for a contagious disease disaster.
- There was a failure to use "public health expertise" as in how and what to do in the case of a biological release.

"Disasters define public health and expose its vulnerabilities," Burkle said. "We have to think of the worst possible scenario and plan accordingly. The medical and public health response system needs to drive technology development, and not vice versa. This will require significant investment and a strong commitment at all levels."

Burkle's talk was part of Chemistry & Materials Science Associate Director Hal Graboske's symposium series, Frontiers in Chemistry & Materials Science. The series focuses on stimulating and challenging presentations by leaders in the fields of chemistry, chemical engineering and materials science.

Coping with biological terrorism calls for comprehensive strategy

The need for a comprehensive strategy for coping with biological terrorism will be discussed when Christopher Chyba presents "Toward Biological Security," as part of the Director's Distinguished Lecturer Series.

Director Bruce Tarter invites all employees to attend the lecture, which takes place at 3:30 p.m. Thursday in the Bldg. 123 auditorium.

As part of the 50th anniversary celebration, the Lab is also sponsoring a special community lecture by Chyba on "The Search for Life in the Solar System," on Thursday at 7 p.m. at Livermore High School.

Christopher Chyba

Chyba is the co-director for the Center for International Security and Cooperation and associate professor of research in the Department of Geological and Environmental Sciences, both at Stanford University. He also is the Carl Sagan Chair for the Study of Life in the Universe at the Search for Extraterrestrial Intelligence (SETI) Institute .

According to Chyba, last fall's anthrax attacks make it clear that the United States needs a comprehensive strategy for coping with biological terrorism. For too long, thinking about biological weapons has been held hostage to misplaced analogies to nuclear and chemical weapons. Chyba says an effective strategy must instead focus on the special challenges posed by biological threats. Biological security requires a mix of nonproliferation, deterrence, and defense that looks very different from the techniques used to curtail the spread of nuclear or chemical weapons.

Effective biological security demands that the United States act to improve global disease surveillance and response capacity — an element of "defense" that has no good nuclear or chemical analogue, Chyba maintains. Biological security also requires ongoing research to counter emerging potential threats driven by biotechnology. It is as much about public health, science, and technology as it is about military strategy. These needs emphasize the vital role that scientific advice will continue to play in national security.

Chyba's lecture will be broadcast on Lab Channel 2 Thursday, May 23 at 10 a.m., noon, 2, 4, and 8 p.m., and on Friday, May 24.

ISRF construction will bring closure to parking lots, road sections

With the ceremonial ground-breaking out of the way, construction will hit full tilt later this month for the new International Security Research Facility, or ISRF.

During the initial phase of the construction, which will start May 28 and last about three months, there will be some disruption to two parking lots and two roads in the west area of the Laboratory. Additionally, one temporary parking lot will be permanently closed.

The parking lot that will be most affected — with parking spaces temporarily unavailable — will be the A-4 parking lot, especially in the lot's west and south areas.

The A-5 parking lot will have a more limited impact, with some parking spaces out of use for short periods. The temporary Z-4 parking lot that was used during the construction of Bldg. 132 will be permanently closed as part of the ISRF project.

The two road sections that will be temporarily disrupted are Fourth Street, from Bldg. 141 westward; and Avenue A, from Fourth Street south to Mesquite Way.

"We know this period of the construction will be an inconvenience to some of the employees that park in the west area of the Laboratory," said ISRF project manager Roger White. "We will be doing everything we can to mitigate these impacts and we appreciate the patience and cooperation of employees."

The construction effort will be done in stages, White added, in order to reduce the number of unavailable parking spaces in the area.

People looking for parking spaces will find plenty available in two other lots slightly further away — parking lots A-6 and A-7.

As a part of the initial construction, trenches will be dug and underground utilities — electricity, sewer, water — will be extended in preparation for the ISRF, which will be Bldg. 140.

Once the first phase of construction is completed, most of the work for ISRF will be confined to the building site with little impact on nearby buildings or employees.

The two-story, 64,000-square-foot building will be constructed by Benicia-based Lathrop Construction Associates Inc. It will be used by Laboratory scientists to conduct state-of-the-art analysis on national security threats posed by the proliferation of weapons of mass destruction.

People who have questions or concerns about the construction and related work should contact White at 3-2222.

CLASSIFIED ADS

See complete classified ad listings at https://www-ais.llnl.gov/newsline/ads/

AUTOMOBILES

2001 Honda Accord DX, 10900 miles, automatic, dark green, am/fm cd player, air-conditioning, excellent condition, $17000.00 or best offer, call 510/305-5229 or 510/305-5618.

1981 - Toyota Corolla SR5 fastback. Red w/tinted windows, 5spd, a/c, CD/stereo, runs excellent. good young person's car. 220k miles. $1500.00/offer 209-599-5056

1998 - Mazda 626,4dr,auto.,a/c, tilt, tinted windows, cd, new brakes, very well maintained, perfect for family/commuter. $8,500obo 209-271-7090

1993 - Caravan SE, 74K mi, loaded, excellent condition. $5800. 925-449-1550

1991 - Honda Accord 4-door LX, midnight blue w/ tan interior, 162.7K miles AC, AM/FM cassette, 4 newer tires, PB, PW, good condition, attractive car. $4K 925-829-8826

2000 - Honda Civic Ex, custom tires, rims, moonroof, power windows, locks, CD, tinted windows, excellent condition, 26k, $14,500 209-832-2862

1997 - Ford Explorer XLT, V6 SOHC, Power seats, windows, 6 disc CD, good condition, 90k $9,500. 209-832-2862

1999 - Durango,4x4SLT,Tow Pkg,5.2L,AT,PL/W/DS/Mirror,RoofRack,Cruise,AM/FM/CD,3rdSeat,DualAir,AlloyWheels, Keyless,ExcellentCondition,30Kmiles, $22,500 209-531-2378

1999 - Buick Regal GS, all power, leather, black with tinted windows, 7 year 100k mile warranty, 31k miles, $16,995 obo. 209-835-9240

1996 - Dodge Intrepid, 4dr,auto,all pwr,low miles, clean,great cond.$6750. 209-833-1201

1987 - Ford Taurus GL, 1 owner, garage kept, 141k mi, new radio/cd, AC, runs fine. $1500 OBO. 925-443-8270

1997 - EXPLORER; White w/blk trim; IMMACULATE; 2dr; 2WD; Cruise, A/C, AM/FM/Cass, Pwr dr locks/windows; New tires, New batt, New brakes; 68Kmi; $8100. 925-846-3508

1996 - Saturn SC2 (2dr), Great condition, green, 85K miles, automatic/air/am/fm/cassette. $5600 OBO. call before 9pm 925-961-9706

1993 - Subaru Legacy Wagon, 86,000 miles, A/C, roof rack, rebuilt clutch, $3695/OBO. 925-961-0777

1994 - Pontiac Grand AM SE 4cyl 4dr AT 72k miles, new brakes, new tires, power windows, power lock $2500. 925-371-5089 925-371-5089

1995 - Honda Accord EX Wagon, 87K miles, great condition $8,900 209-836-4458

1980 - Mercedes Benz 280E, (not a diesel), runs good, looks good. $ll00. 925-447-7970

1990 - Red Nissan Sentra, approx 68,000 miles. 4 speed, AM/FM/Cassette. Clean. $2,300 OBO. 209-833-0834

1986 - Toyota Camry LE, 5 speed, a/c, p/s, runs great, good mileage, Paint faded, $1500.00 or best offer 925-443-6416

1990 - Toyota 4-Runner, V-6, 5-Sp. Manual, 4x4, Looks/runs great, 140K miles, $5400 925-455-9405

1999 - Acura/Integra 3DR GS-R,Black/Ebony, 29.5m, Fully loaded, leather w/alarm,Power moonroof,15 inch alloy wheels, warranty, VTEC engine, $15.99K 925-370-7083

1998 - Saturn SC2, Fully Loaded! Dual Exhaust with Flow Masters. Tinted Windows, Sony detachable CD/Stereo, $10K or BO. Must see! Immaculant condition. 925-516-7689

1990 - Camaro RS, V8, auto, air, power windows/locks, T-top, red w/black interior, clean, orig. owner, 150,000 miles, $3,000 obo. 925-516-1365

1993 - Ford Explorer 2-Door 4x4 M/T P/S P/B AM/FM Radio CD player w/removable faceplate. Fold down rear seats. $6000/BO 925-413-7546 925-449-8024

1997 - Ford Explorer XLT, V6 SOHC, auto, 4WD, fully loaded, tires, good condition, 90K, $10,000 209-832-2862

2000 - Honda Civic Ex, excellent condition, automatic, fully loaded, rims/tires, 26K miles, $15,000 209-832-2862

AUTOMOBILE ACCESSORIES

Steel wheels 16 inch 6 lug off 1999 Chevrolet 4 x 4. $50 925-516-8339

BICYCLES

New condition Schwinn stunt bike. Pegs, Gyro. Metallic light green & chrome. Original cost was $330.00, asking $220.00 O.B.O. 209-832-2865

BOATS

Kawasaki 550 jetski, excellent, low hours for 1983. ride standing or sitting with unique wedge attachment. w/accessories, needs battery. $1500/offer. 209-599-5056

1994 Champion 191 dcx Elite Bass boat. Fully loaded. $15,000 obo. 925-449-1545

91 Reinell 17ft boat w/trailer, V6 4.3L I/O, Excellent Condition Lo hrs, fish/depth finder, custom cover, dual batteries, Garaged $7600 OBO. 925-245-1414

CAMERAS

Bessler BW Enlarger and equipment, never used. $75.00 925-449-1340

ELECTRONIC EQUIPMENT

Pioneer VSX-455 Stereo Receiver, 110W per channel, remote, $175. Coral BX-1200 100W Speakers, 25Hz-25KHz, $25 each. Boston Acoustics Digital BA735 powered sub/satellite computer speakers, unused, $20. Call for more info. 925-455-0639

TV, 35 in Tube, Mitsubishi; $350.00; TV Stand, $45.00 925-606-4332

Coin operated electronic dart board. Over 6 ft. tall. Fully functional. $300.00 925-443-3883

PLAYSTATION 2 GAMES: Resident Evil, SSX, Summoner, Zone of the Enders, $20/each or $60 for all, excellent condition. 925-443-8889

CD tower made of heavy steel. Holds 132 CDs. $60.00. Bob 925-838-9302

GIVEAWAY

Free gas grill, complete with propane tank. Spark starter does not work. Come and get it. 925-443-1911

PowerMac 6100/60 AV computer plus software, modem, 100-MB zip drive. No monitor. 925-417-8813

Free folding ping-pong table. Slightly warped, but still fun to use. Come and get it. 925-443-1911

Desk: metal, cream color, Excellent condition. You pick up 925-449-1340

NordicTrack Skier, crosscountry ski simulator, great condition, bought at charity auction, free to you, leave message. 925-373-1696

Free Weber charcoal grill. Very portable. Come and get it. 925-443-1911

HOUSEHOLD

Oak Executive Desk, two file drawers, 5 other drawers, Excellent condition, Paid $300 @ Costco, $100/obo 925-443-4349

Stainless steel double sink. Excellent condition, never installed. Outside rim dimensions 33 x 22 in. Both sinks 6-in. deep. $25. 925-417-8813

Little Tikes Desk, new, $30, Britax roundabout denim/plaid carseat, $75 925-294-9022

CHANGING TABLE, white with new contoured pad. $50.00 925-443-1903

Clothes Dryer, Maytag, Older but works well, $30 925-245-0605

Two Rocker Recliners, medium blue, $100 ea., Oak kitchen table with 6 chairs, $150, Oak end table, $20 . 925-833-6076

Steamer trunk, arched back, 35 wide by 21 deep and 29 tall. Interesting item. $40 925-449-7388

Solid oak roll top desk(dark wood), excell cond.$700 925-516-8339

Duncan Phyfe antique dining room table/chairs 2 extensions,table pads excel cond. 400.00 obo 925-443-2173

Stove/Oven and Refrigerator, both run, both $25 dollars each. 209-836-2813

Desk 54LX26W $30; Love Seat Brown Suede/Oak trim $40; TV/Stereo Cabinet/black $25; Weber Kettle BBQ $15; All Great Condition. 925-447-1428

Oak entertainment center. Open unit, with different comparments and shelving. 5 feet wide x 6 feet tall. Asking $140. 925-606-0825

Whirlpool Electric Dryer. Almond color. Clean. Works great. $70. 925-245-0166

Solid Pine Bunk Beds. As new - never been used. 2 new mattresses also available. Price $500, ono. 925-606-0203

Moving Sale - Appliances, furniture, and other miscellaneous items. Please call for a description of what all is for sale. 510-276-4830

Entertainment center, tall type, dark wood, from Ethan Allen. $500, OBO. 925-454-3069

Oak computer desk with hutch and printer table. L shaped corner unit. Great condition $75. 925-606-6599

Oak Roll Top Desk, 1970s. Great condition, file size drawers on each side, 49 wide, 29 deep, 43 high. $400.00 or best offer. Call 925-837-2075

Solid oak entertainment center. 60in.W x 46in.H x 20in.D; TV opening 29 in.W x 26-1/2in.H. Glass doors with shelves for components. $175.00 925-454-1881

Refrigerator Maytag Plus w/water, ice, filter & change indicator; 1 year new; 35-3/4in.W x 70-1/4 in.H, 31-1/4in.D; 27.3 cu. ft. Bisque $999.00 925-454-1881

Freezer 18 cu.ft standup. works great. New seal on door. $100 OBO. 925-240-7019

LOST & FOUND

found-diamond looking ear ring in silver stud for pierced ear. Found in b-131 by video recording studios. Ph 2-1342 510-782-2349

Found- Beaded ear ring. Dark bluish with hins of green. Found near 222. Call 2-1342 to describe. For peirced ear. 510-782-2349

MISCELLANEOUS

Porter-cable 1/14in brad nailer, air power, new-never used. $70. Kids white resin table w/ 4 chairs, $20. 925-294-9022

Spa with gazebo. 1986 Calx with hydroquip system. 5person w/lounger 220/110v in good shape, new bearings and seals. $650 209-599-5056

30 Used 12ft 3-Legged wooden picking ladders in good condition. $20.00 each. Bpr#01153 or 209-892-6993

Garage sale:1680 Sorrento pl, Livermore. (near liv tennis club)Misc items plus baby stroller, swign, toys and more.Table decorations for wedding. 925-606-1791

Livermore Rodeo 6/8 & 6/9. Fun for the whole family. Rodeo Mixer/Penning 6/5. 925-447-3008 or 925-455-1550

Spa, never used, seats 4, cover, ozone system 110/220V $2850 925-606-4250

MOVING SALE - SAT & SUN, MAY 18 & 19, 9am - 2pm, 4976 Lyra Court (Springtown), Livermore. Household items, books, appliances, t-shirts, tools & MORE! 925-449-8124

BRITNEY SPEARS - Oakland Arena Sat June 1/02. Sec 108 Front View to Stage. Face Value plus fees. 925-580-9694

Garage Sale - Saturday May 11 and Sunday May 12 from 9:00am - 1:00pm. Lots of furniture, collectors items, childrens items. 5746 Felicia Avenue. 925-443-0499

Kids cute play table. 4-ft dia. table top with elephant shaped base. Comes with two chairs painted and shaped like giraffes. Must see, asking $80 925-606-0825

Utility Shed by Royal, 4ft x 7ft, used for 2 months. Still under warranty. Paid $550. Will take $225 925-373-1686

Shopsmith mark 5 1950 era restored,lots of extras including tooling $300.00 or best offer 209-835-0622

Laguna Seca Camp site for Indy Car weekend (June 7,8,9) between 9 and 10 next to track. $300 (reg $375) 925-513-3538

Last bargain: 2 SF Opera orchestra tickets for CARMEN, June 8, 8PM. $135 each, sale both for $170.00 925-935-5004

Copier, Savin 9940DP in great condition and just 4 years old. Purchased for $7,000. Being sold for just $500. 925-373-0865

Countertop Microwave. 1500 W. Works great. New house has built in microwave. $50. 925-606-6599

Computer furniture, workstation stand H x W x D = 53x28x24 inches good shape, no chips or marks, $40bo 408 578 1792 408-578-1792

MOTORCYCLES

1968 - Yamaha YCS1-C. Classic 180cc, two stroke. Easy restoration project. $350 including delivery to anywhere in East Bay/Tri-Valley/Tracy area. 925-600-1817

2000 - Buell Blast, 500cc , <500 miles, Red & Yellow plastics, great for beginners. $4500 209-825-8132

1982 - Suzkui Shuttle FA50, yellow. $450 or Best Offer. 925-833-6061

1999 - Harley Davidson Sportster very clean original owner 1316 miles lots of chrome. blueish/purple $8,000 obo 925-978-0664

MUSIC INSTRUMENTS

Electronic organ, Swinger with accompaniment keys, foot pedals, and recorder. $1,800 or best offer. 925-833-6061

PETS & SUPPLIES

Igloo-type plastic dog house for large dog (up to 100 lbs). Dog never used it. $50 OBO. 925-443-1699

Free to good home. Good looking and natured male Chow Dog. Excellent watch dog. Loves to play! 209-463-0457

CUSTOM CAT FURNITURE Superior construction, free-standing or built-ins, competitive prices. Safe, fun, attractive designs. 925-606-0234

Boxer Puppies Purebread. 4 Males. Available On June 15. Must See. Call For Info. $300 925-753-0238

RECREATION EQUIPMENT

Pool table, Brunswick sportking, 4.5 x 9, 6 inch rails, 1 inch slate.$1200 925-516-8339

DAKINE snowboard LAMER bindings KEMPER boots size 9 excel cond. used once 100.00 925-443-2173

Weight bench and squat/bench rack. $60.00 209-836-4458

START YOUR OWN GYM - 900# steel weights 30¢/#, chrome bars, dumbbells 60¢/#, lat pulldown machine, iron worker, smith machine. All or part. 925-634-9976

RIDESHARING

Express your commute, call 2-RIDE for more information or visit http://www-r.llnl.gov/tsmp

Modesto - One temporary seat during July and August. Leave CrossRoads Mall/Carpenter and Kansas 6:40 a.m.sharp. Exit Lab 4:45-$70/month. 209-576-0217, ext. 2-7459

Orinda - Carpool from Lamorinda seeks 4th rider/driver. Meets near St.Stephens & 24. Lab hours 8:15am-5pm. 925-253-0498, ext. 2-9823

SERVICES

Tree Service: Trimming, thinning, stump removal and grinding. 925-449-2087

House Painting - Over 16 years experience. call for free estimate. 209-956-3718

Fencing. Wood. New, Replace or Repair. Free estmate. 925-373-9540

CONCRETE: Custom, stamped, colored, foundations, flatwork & more. Lic#787092-B. Over 20 yrs exp. Free estimates. 209-833-8309

House Cleaning Resonable Rates Honest Dependable 209-914-4409

Reliable and experienced housecleaning. Also caregiving and babysitting services. References available. Call evenings. 925-373-1113

SHARED HOUSING

Chico, CA - Need 2 more roommates to share lg. 5 bedrm. home while attending Chico State. Walk to college. $400 deposit, $340 mo. rent. Call 530-566-1117 or 925-229-2240

Tracy - Room for rent, prefer someone who works nights, 3 br. 2 ba. home with pool, waterfall, full privileges. $575, includes util. 209-833-6443

Livermore - - SUMMER STUDENTS looking for furnished rooms to rent 8-10 weeks beginning June/02. Prefer walking or bike-riding distance to Livermore Lab. 925-447-1428

Livermore-Roommate wanted. Located 1 mi from Lab in the vineyards. All priv., internet access, N/S, N/P. $700 925-449-1545

TO TRADE

Brand New 16mb PS2 Memory Card still in package with Memory Doubler Software. Will Trade for working color monitor. 925-245-1560

TRUCKS & TRAILERS

1996 - Ford Ranger XL, Ext. Cab, 4 cyl., 5-speed, X-liner bed liner, CD player, 63K miles, $5800 OBO 925-294-9810

1984 - Nissan Kingcab delux two-tone blue, clean, white shell w/carpetkit, 5spd, a/c, sunroof, runs good. 225k miles. $2500/offer 209-599-5056

1996 - Chevy Silverado ext. cab pickup with camper shell, bed liner,& tow pkg. Loaded, engine recent overhauled by Chevy dealer. Excellent condition. $9,900 925-398-8039

1990 - Fiberglass bed canopy/topper for import truck. Creme color. Side windows. Latches sometimes. $100 925-455-6653

2000 - Starcraft Starflyer Tent Trailer, Sleeps 6, Refrig., forced air, heat, awning, gas or electric connection. Used 3 times. $6000 O.B.O. 925-524-9381

1992 - Bounder 34ft Fleetwood 454Chev 18+KMi.Onan gen leveling jacks awning cruise cont elec steps fibergl ext LPG gas outside shower rear camera more$37500 510-357-5304

93 - FORD F-250, 460, 5-Speed, Extended Cab, AC, CC, Power Windows and Locks, 64,000 miles, Clean and in Great Shape. Must Sell. $18,000 O.B.O. 209-892-6720

1985 - Chevy suburban(Diesel) needs some work. $1200.00 209-956-3718

1999 - Chev Silverado, 1/2T pickup, ext cab/short bed,tow package, bed liner, dual exhaust, new tires, 63K mi Exc condition $19,700 obo 510-881-8536

1979 - Coleman tent trailer, solid top, w/ heater, kitchen, sleeps 6, 110/12V, awning, 1150 lb, great condition, $1000 925-455-8895

1998 - Dodge Ram 1500 Sport 5.9 Liter,Automatic,Quad Cab,Pw,Cc,Ps,Abs,Front Bench Seat,Sliding Window,Passenger Air Bag,Bed Liner,62k Miles $15,000 Obo 925-240-6237

Cabover Camper for Shortbed truck. In good condition. Stove/oven/sink $500/obo 925-413-5716

VACATION RENTALS

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. Low LLNL rates for year-round reservations. 925-449-0761

SOUTH LAKE TAHOE - 3 bedroom 2 Bath Chalet,newly remodeled,nicely furnished,all amenities,Great for Families, Reserve now for Summer! 209-599-4644

Maui, Wailea Ekahi. Luxury condo, 1 bdrm, 2 ba. Available with discount: May 18-27, June 4-20. Cabin in Arnold available May, June, August. 510-582-9262

WANTED

Would like to buy your air miles, if possible. 925-245-1414

General contractor (or recommendation for same) to do modest remodeling of an over-the-garage room (e.g., add sleeping alcove, closet). 925-447-4830

Wanted, 1979 or 1980 CJ7 304 V8 Auto.Call Dat 294-2494 209-835-8618

Wanted, A used Windows 98 PC. 2 PCI slots, 3 preferred. Must have system software. 925-455-4970

Trampoline in good condition. 925-634-5312

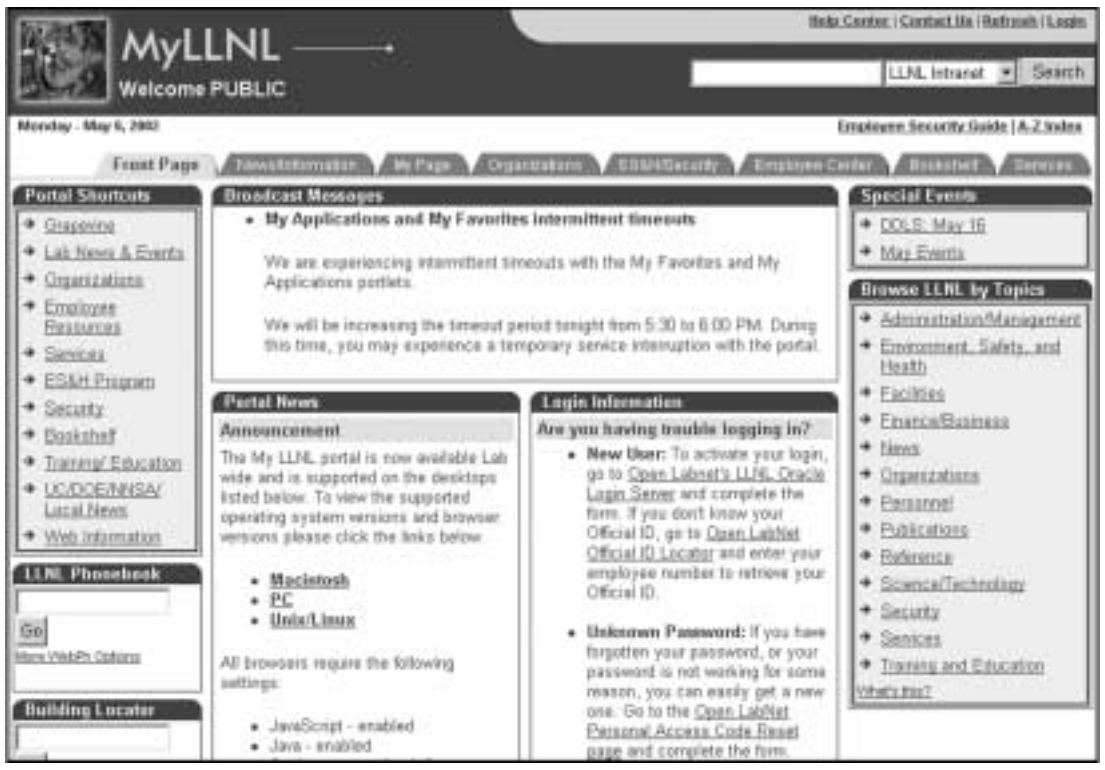
Due to space limitations, *Newsline* may withhold ads that have already run. They will still appear on the Web.

Welcome to 'MyLLNL,' your portal to Lab information

Employees must obtain personal access code

MyLLNL is an intranet "portal," a new way to access Laboratory unclassified information. The portal is a single point of entry to the LLNL intranet that can be personalized to access a wealth of information and expertise Lab-wide.

MyLLNL is available to anyone at LLNL with access to the Laboratory's intranet. Once logged in, you can customize your portal pages to show the information you want to see. MyLLNL also includes a Help Center website where you can learn about portal features and how to customize your portal display.



Lab employees using "MyLLNL" can log onto the portal's "Front Page," as shown here. Once logged in, users can customize portal pages to display the information they frequently use.

How to access MyLLNL

• Obtain your official Laboratory ID and personal access code, as detailed in previous issues of this publication (for questions about your PAC, send an e-mail to auth-help@llnl.gov).

• The portal is currently supported on the Mac with IE 5.X and on the PC with IE 5.x and above and Netscape 4.7.X and above. Check detailed configuration information at https://www-r.llnl.gov/portal/help/

• Point your browser to https://www-r.llnl.gov, and you're ready to go. Also, check your mailbox for a special bookmark with reference information about MyLLNL.

A special MyLLNL Demo Day will be announced soon. This will be an open forum for demonstrating the portal and answering your questions.

JGI

Continued from page 1

develop new tests and improve existing ones, knowing the whole genomic sequence of each organism and its close relatives can be vitally important.

JGI is ideally suited to this effort because of its capacity and depth of experience in sequencing microorganisms. In a little over three years, JGI has sequenced scores of microbes — last year it sequenced 15 bacteria in a single month and today is capable of sequencing an average microbe's genome twice over in a single day.

This week, JGI's Production Genomics Facility (PGF) began work to determine draft genome sequences of several bacteria already under study at Lawrence Livermore and Los Alamos national laboratories. JGI was founded in 1997 by these two laboratories and Lawrence Berkeley National Laboratory.

The first pathogens to be sequenced under the current program are members of the Bacillus, Brucella, Clostridium, Francisella, Shigella, and Yersinia groups. In many of these groups, several strains or related species will be sequenced, for example, two strains of Bacillus anthracis (anthrax) and one of the similar species Bacillus thuringiensis.

Depending on how quickly the organisms become available, JGI plans to sequence the whole genomes of many more potentially hazardous bacteria and a number of their less harmful relatives.

Sequencing at JGI will not involve actual pathogens. Whole organisms will be received and handled at laboratories equipped with appropriate containment facilities, like those in place at Livermore and Los Alamos, where the DNA of each pathogen will be reduced to fragments to be sent in a disassembled state to the Production Genomics Facility.

The genome of a typical bacterium is a circular piece of DNA containing approximately two to five million "base pairs" — pairs of the chemical bases, integral to the DNA molecule, that form the letters of the genetic code. Genomes from millions of individual bacteria are fragmented to create a library of random pieces each about 2,00 to 3,000 base pairs long. Each fragment represents only about 0.0005 percent of the complete genome.

Because intact genomes are not involved, the Centers for Disease Control and Prevention have registered the PGF to receive this fragmentary DNA with no change in standard procedures. The PGF will work with multiple copies of each fragment. Automated equipment determines the exact sequence of bases on each strand. The data is then assembled by a computer program to reconstruct the order of the bases in the whole genome.

The completed sequence exists only as a string of letters in a computer's output. No physical genomes will be handled at JGI, and the standard laboratory strain of E. coli, in which individual DNA fragments are reproduced, will be disposed of after sterilization, according to the standard operating procedures of the PGF.

Draft sequences will be shared with Los Alamos and Lawrence Livermore laboratories for finishing and annotation.

JGI has been a leader in sequencing organisms of crucial interest to researchers around the world. For the Human Genome Project, JGI sequenced human chromosomes 5, 16, and 19, which together constitute some 11 percent of the human genome. JGI sequenced mouse DNA related to human chromosome 19 to illuminate the molecular evolutionary history of the two species. Working with an international consortium of universities and industry, JGI participated in the sequencing of the gene-rich puffer fish (Fugu rubripes). The 165-million base-pair genome of the sea squirt (Ciona intestinalis) was sequenced jointly by JGI, Japan's National Institute of Genetics and Kyoto University. JGI has also sequenced the environmentally important white rot fungus (Phanerochaete chrysosporium) and over 50 important microorganisms.

More information about JGI can be found at www.jgi.doe.gov.

SALTON SEA

Continued from page 1

lenges: providing adequate water for the agricultural industry in the Imperial Valley along with the increasing industrial and residential demands in Southern California; and finally, maintaining a robust aquatic ecosystem at the Salton Sea.

"If we are to meet all of the existing demands, we have to bring new water to the area eventually," said Dana Christensen, principal deputy associate director of the Energy and Environment Directorate. "This study looks at how we are going to maintain the Salton Sea and the whole Imperial Valley."

The recommendations drawn up by LLNL would help mitigate the consequences of a water transfer that the Imperial Irrigation District is proposing. For years, California has been using more water from the Colorado River than its basic annual allocation of 4.4 million acre-feet. The state must reduce its water withdrawal from the river by 0.8 million acre-feet per year to meet a Dec. 31 deadline mandated by the California Colorado River Water Use Plan.

Water conservation efforts are one way that the Imperial Irrigation District plans to reduce river water use. Once those conservation methods are in place (and the saved water transferred to urban water agencies), agricultural water run-off into the Salton Sea will decrease. This decrease in water would increase the sea's salinity and lower its water level. The Salton Sea's salinity level (currently at 45,000 parts per million) is critical to the survival of fish. As the salinity level creeps closer to 60,000 parts per million, fish and the birds that eat them will be threatened.

Short-term solutions range from pumping water from the Salton Sea to evaporation ponds for salinity control to pumping groundwater from nearby irrigation canals to maintain the sea's water level. In the evaporation pond scenario, saltwater would be diverted to the evaporation ponds, where it would evaporate, leaving the salts, but this action would also lower the sea's elevation. Another alternative is to discharge brackish (slightly salty) or fresh water into the sea to sustain the aquatic ecosystem and reduce erosion of the exposed shoreline.

LLNL researchers concluded that reclaimed groundwater (seepage) from the All American and Coachella canals could be fed directly into the Salton Sea, slowing the rate of salinity increase and maintaining the sea's water level. Test wells would have to be drilled to determine the amount and quality of water.

"The canals have lost a significant amount of water over the years," said Dave Layton, division leader of the Lab's Health and Ecological Assessment Division, who conducted water studies in the Imperial Valley during the late 1970s. "This seepage water represents a potential resource to replenish the loss of sea water and maintain water levels."

Lab researchers are also looking at ways to use geothermal energy to desalinate sea water and then pump it back into the Salton Sea

A long-term solution, the report concluded, would consist of producing new water from brackish wastewater, groundwater or saltwater from the Gulf of California. The Yuma Desalting Plant in Yuma, Ariz., would use reverse osmosis to purify the water. A pipeline from the plant would then have to be built to transport the water to the All-American canal for conveyance to the Imperial Valley.

"Without a new source of water for the region, all of the key stakeholders will suffer in some way," Christensen said. "There is an urgent need to put into place a solution that will balance the ecological requirements of the Salton Sea with the timing and impact of transferring conserved agricultural water in Imperial County to urban water agencies."

Controlled access to East Avenue expected in July

The Alameda County Public Works department erected signs along East Avenue this week announcing the intended access control and transfer procedures that are expected to be in place on the street beginning July 2002.

Earlier this week, the Alameda County Planning Commission approved that vacating the roadway by the county conforms to the general plan. The next step in transferring control of the road will be a public hearing at a regularly scheduled meeting of the Alameda County Board of Supervisors. That step is expected to take place in July.

Supervisor Scott Haggerty has been working closely with managers from both Sandia and Livermore on this issue.

"I realize this is an important security consideration for the laboratories and the community," said Haggerty. "My goal has been to ensure it can be done quickly and effectively with minimal impact on the local citizens and others who use this roadway."

Controlling access to East Avenue between Lawrence Livermore and Sandia Labs surfaced following the terrorist attacks of Sept. 11.

"We realized the necessity of controlling access to East Avenue," said Den Fisher, associate director of Safety, Security and Environmental Protection. "This move will significantly enhance the security of our people, our facilities and our surrounding neighbors."

TTEC

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SCOTT WILSON/PUBLIC AFFAIRS

Visitors of the software showcase were able to see some of the Tri-Valley's state-of-the-art technology.

Technology Enterprise Center (TTEC), highlighted some of the best local technologies coming out of both the private and the public sector.

"The Tri-Valley is the fastest growing technology center in the area," said Michael LaLumiere, TTEC's executive director. "There's no denying technology is here to stay in the Tri-Valley."

Lab keynote speaker David Nowak, deputy associate director for Defense and Nuclear Technologies and program leader for the Advanced Simulation and Computing Program, opened up the one-day conference with an overview of the Lab and how the ASCI program partnered with IBM to build the second most powerful computer in the world.

"We develop state-of-the-art technology and are one of the major employees in the Valley," Nowak said.

ASCI White, which can perform 12.3 trillion operations per second, is a perfect example of how the Lab worked with IBM in an industrial partnership, Nowak said.

He said the Lab along with Sandia and Los Alamos national laboratories are on the cutting edge of building the most powerful supercomputers so that the labs can perform some of the most complicated simulations.

ASCI continues to team with academia and industry to advance simulation science.

"Though nuclear deterrence remains a cornerstone of our national defense, the problems we are solving today are the problems that the scientific community at large will be solving in 10 years," Nowak said.

Nowak said other Lab technologies have spun out to the commercial environment through partnership and from some Lab employees leaving to start their own companies. He used Cytomation, Cepheid, ThermaWave and PowerStor Aerogel as examples.

Companies started with LLNL technologies or LLNL employees total 54 companies with 1,300 employees and annual revenues of more than $230 million.

Other presentations at the showcase included talks by executives from Sandia, PeopleSoft, Sybase and Microsoft.

Lab and Sandia scientists showcased some new technologies — some that hadn't been talked about previously — during the afternoon sessions,

LLNL technologies included: cell and tissue analysis that will speed up the detection of cell mutations without requiring large sample sizes; data mining of large, complex data sets; a new way to reduce emissions from power plants without reducing efficiency; MEMS-based fuel cells; and a 3-D seamless Internet technology.

Sandia publicly announced its plans to make its Network Software Security, a cyber security technology, commercially available.

COMBUSTION

Continued from page 1

and their relationship to photo-chemical smog and acid rain came to light in the late 1980s, fuel was typically burned in boilers and furnaces with single-stage combustion using air as the oxidant stream.

NO_C emissions are regulated under the provisions of the Clean Air Act and its 1990 amendments. Those requirements demand that dry bottom wall-fired boilers can emit no more than .50 lbs. of pollutants per million British thermal units (Btu – a measurement of energy) and that tangentially fired boilers can emit not more than .45 lbs. of pollutants per million Btu.

To date, low-NO_X technologies, including low-NO_X burners, overfire air and reburning, have been used to reduce NO_X production in coal-fired boilers. But they must then reach significantly lower emission levels required by 2005.

Fischer said SCNEA is expected to lower corrosion and slagging rates extend the lifetime of equipment and decrease down time and maintenance costs in power plants. He estimates that a 350-megawatt coal fired boiler plant would cost about $60 million to retrofit for SCNEA operation.

The SCNEA combustion method burns fuels in two or more stages, where the fuel is combusted "fuel-rich" with nitrogen-enriched air in the first stage, and the fuel remaining after the first stage is combusted in the remaining stage(s) with air or nitrogen-enriched air.

"You get the NO_X reduction but you're not taking a significant hit in efficiency (energy output) of the power plant," said Kevin O'Brien of New Business Development in the Engineering Directorate.

This method substantially reduces the oxidant and pollutant loading in the effluent gas and is applicable to many types of combustion equipment including: boilers, burners, turbines, internal combustion engines and many types of fuel including coal, oil and natural gas.

Livermore is working to form a consortium of representatives from the EPA, utility companies, boiler manufacturers, emission control equipment companies and a company that produces nitrogen-enriched air. The next stage is to do a small scale-pilot program.

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tive fission properties. However, it is plutonium's electronic structure that makes it the most complex and fascinating element.

As element 94, it fits near the middle of the actinide series, which marks the emergence of 5f electrons in bonding. With little provocation, plutonium can change its density by as much as 25 percent. It can be as brittle as glass or as malleable as aluminum; it expands when it solidifies; and its silvery freshly machined surface will tarnish in minutes, producing nearly every color in the rainbow.

In addition, plutonium ages from the outside in and the inside out. It reacts vigorously with its environment, particularly with oxygen, hydrogen and water, thereby degrading its properties from the surface to the interior over time. And plutonium's continuous radioactive decay causes self-irradiation damage that can fundamentally change its properties over time.

Plutonium may be a physicist's dream but it is an engineer's nightmare, says Hecker. During his presentation, Hecker will describe some of the trials and tribulations of the 60-year history of plutonium in the nuclear weapons program. He will also talk about how plutonium, as a correlated-electron material, is at the forefront of condensed-matter physics research today.

Hecker's talk will be broadcast on Lab Channel 2 Thursday, May 30, at 10 a.m., noon, 2, 4, and 8 p.m., and on Friday, May 31, at 4 a.m.

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